UNITED NATIONS
ECONOMIC AND SOCIAL COUNCIL

Distr.
GENERAL

E/ECA/PSD.4/29
21 February 1986

Original: ENGLISH/FRENCH

ECONOMIC COMMISSION FOR AFRICA

Fourth Session of the Joint Conference of African Planners, Statisticians and Demographers

3-12 March 1986, Addis Ababa

LC/NAIROBI.

POPULATION DYNAMICS IN AFRICA

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ANNEX

I. INTRODUCTION

1. At the Expert Group Meeting on Fertility and Mortality Levels Patterns and Trends in Africa that was held in Monrovia in 1979 it was underscored that most of the censuses undertaken during the 1970s rounds of censuses had been analyzed but there was need for further valuable comparative analysis by ECA or with the collaboration of ECA 1/. Furthermore, the third session of the Joint Conference of African Planners Statisticians and Demographers (Addis Ababa, March 1984) urged the secretariat to report on current estimates of fertility and mortality in the ECA member States. The Second African Population Conference (Arusha) went even further by adopting a set of recommendations on the collection processing and analysis of population data so that such research would enhance awareness of population dynamics 2/.

2. The secretariat has since undertaken studies in the area of fertility and mortality aimed at identifying the levels, patterns, trends and differentials and their socio-economic determinants in some African countries. Evidence has indicated that it is difficult to give an overall picture of fertility and mortality levels, patterns, trends and differentials because of lack of series of demographic data, problems of data collection, methodology and techniques of demographic analysis that would be suitable to derive plausible estimates of fertility and mortality. These and other problems limit the scope of this paper to consider only the current estimates of fertility and mortality in some ECA member States. As far as possible most recent population census and demographic survey data including data collected as part of the World Fertility Survey (WFS) programme have been used similarly various demographic techniques were applied to derive current estimates of fertility and mortality. The paper is divided into two major parts: the first being on fertility estimates and the other presents the mortality situation in selected African countries.

II. ESTIMATES OF CURRENT LEVELS OF FERTILITY IN AFRICA

2.1 Source of Data

3. Fertility data on most African countries are fragmentary and inaccurate. Despite the efforts of national and international organizations to improve the quality of population data of African countries, an exhaustive and reliable system of civil registration will have to be established before reliable fertility indices on most African countries could be available. In fact only four countries. Algeria, Egypt Mauritius and Tunisia have been able to establish a system of birth registration which can be used to calculate fertility indices.

1/ ECA, Population Dynamics, Fertility and Mortality in Africa, ST/ECA/SER.A/1 Addis Ababa 1981, pp. 1-3

2/ ECA, Kilimanjaro, Programme of Action on Population ST/ECA/POP/1. Addis Ababa 1984.

4. The population - related activities carried out since independence provided data which were used to estimate fertility indices that could reasonably be accepted for most African countries. There are three main sources of information on fertility Population censuses and post-censal surveys; surveys on knowledge attitudes and practice of family planning (KAP Survey) and fertility surveys.

5. Although there is still considerable uncertainty regarding Africa's fertility data situation, much progress has been made during the past 20 years and the surveys carried out as part of the World Fertility Survey contributed considerably to improving knowledge of the levels, trends and determinants of fertility in African countries.

6. The World Fertility Survey carried out by the International Statistical Institute in collaboration with the United Nations Fund for Population Activities (UNFPA) and the International Union for the Scientific Study of Population (IUSSP), was a major international research programme on human fertility. It is a retrospective study. Thirteen of the 42 countries covered by the programme are African: Benin, Cameroon, Côte d'Ivoire, Egypt, Ghana, Kenya, Lesotho, Morocco, Mauritania, Nigeria, Senegal, the Sudan and Tunisia. The geographical breakdown of those countries is as follows: West Africa six; North Africa four; southern Africa, one East Africa, one and Central Africa one.

7. This document mainly considers data on fertility levels and structures generated by the national fertility surveys undertaken within the framework of the World Fertility Survey.

2.2 Fertility levels and structures

2.2.1 Crude birth rate and crude reproduction rate

8. Africa covers about a quarter of the world's surface area and its population which accounts for 11 per cent of the world's population, was estimated in mid-1984 at 540,000,000 inhabitants.

9. The levels of fertility in Africa correspond to what L. Henry described as 'natural fertility', i.e., fertility without any deliberate attempt to limit births, and are relatively higher than the rates observed in other regions of the world 3/. The United Nations estimated the crude birth rate of the African population between 1980 and 1985 at 46 per 1000 which is in sharp contrast to the world average of 27 per 1000 during the same period 4/. Previous estimates for the continent for the periods 1960-66 and 1970-75 show that generally there was no substantial decline in those rates 5/. Table A 1 in the annex shows the crude birth and reproduction rates for African countries during the period 1980-85.

3/ Henry, L. "Some data on natural fertility", Eugenics Quarterly, Volume 8, 1961, Pages 81 to 91.

4/ United Nations, World Population Prospects-Estimates and Projections as assessed in 1982, 1984, New York.

5/ United Nations, Demographic Year Book 1977.

10. Estimated rates by regions indicate that East Africa and West Africa have the highest rates (of about 49 per 1000 for the crude birth rate and 3.4 for the crude reproduction rate), followed in descending order by Central Africa, North Africa and Southern Africa which have crude birth rates of 45 per 1000, 42 per 1000 and 40 per 1000 respectively.

11. Estimates of rates by country show that on the whole all African countries birth rates above 44 per 1000 there are however three exceptions to this rule. The first exception includes islands such as Mauritius Reunion, Cape Verde, the Seychelles and Saint Helena. The first three island countries for which data are available, have birth rates varying between 1.10 and 1.35. The second is comprised of a number of Central African countries namely Gabon, Cameroon, the Central African Republic, and Equatorial Guinea where fertility is kept relatively low by pathological causes rather than by human decision and action.6/. The third consists of Tunisia and Egypt where fertility fell through family planning programmes.

12. To carry out a more comprehensive comparative study on the levels and structures of fertility in Africa this document will be restricted to the 13 countries that participated in the World Fertility Survey. The surveys adopted a multi-stage random sampling method which was representative at the national level.7/. Cumulative fertility and initial fertility will be used to measure levels of fertility while the fertility structure will be studied from age specific fertility rates.

2.2.2 Cumulative fertility

13. The mean number of live births is a retrospective measure of fertility. It measures the total number of live births of each woman since the beginning of her reproductive life. However because of omissions and under reporting with respect to retrospective surveys, this index generally results in an under estimation of fertility. Table A. 2 in the annex shows data on the mean number of live births of ever-married women by age at the time of the survey.

14. Generally speaking, early marriage exposes African women very early to the risk of child bearing and maximizes their reproductive capacity. A newly married couple is very often subjected to all sorts of social pressure to have the first child and other children. A childless woman has no value whatsoever in the eyes of society. In such a cultural context fertility should be expected to be very high.

15. The findings of the national fertility surveys confirm the relatively high levels of fertility at all ages in the 13 countries.

6/ J.C. Caldwell, Perspectives on Fertility and Mortality in Africa, E/CN.14/POP/145, October 1979.

7/ See the description of the sampling plan in the analysis reports of the initial results of the national fertility surveys Volume I.

16. The data in Table A.2 show that the mean number of children born to all women varies between 3.19 in Lesotho and 4.84 in Kenya. The corresponding figures observed in some industrialised countries in 1982 are as follows: the Federal Republic of Germany 1.40; France: 1.94, the United Kingdom 1.79 and the United States of America 1.89 8/.

17 Almost everywhere, women aged between 45 and 49 have a completed fertility of six to seven children. The two exceptions to this rule are Lesotho and Cameroon where the completed fertility of ever married women aged between 45 and 49 is about five children. This is probably the result of male emigration from Lesotho and sterility in Cameroon.

2.2.3 The incidence of sterility 9/

18. The world sterility is used in demography to denote the inability to produce live children. A distinction is made between primary sterility where the woman is never able to have children and secondary sterility, which arises after at least one child has been born.

(a) Primary sterility

19. Sterility could be calculated from the percentage of ever-married women aged between 45 and 49 who have never declared any live births. This index gives the proportion of women who could be considered as being definitely infertile.

20. It is then interesting in this case to note that the level of primary sterility thus obtained is relatively low and is below five per cent and even four per cent in most of the countries studied (Table A.3 in the annex). Morocco, Nigeria and the Sudan have an unusually high level of primary sterility for countries where this type of sterility does not appear to be a serious problem. These figures were in fact cautiously interpreted by the authors of the reports analysing the findings of the national fertility surveys who felt that primary sterility might have been overestimated because of under reporting particularly the confusion between the fact of not having had "any live births" and not having had "any children at all" These authors feel that the best estimate of primary sterility in Morocco is the proportion of 5.4 per cent observed for women between the ages of 40 and 44 who are still childless whilst in Nigeria and in the Sudan the respective proportions of 6 per cent among women between the ages of 30 and 34 and 5.3 per cent among those aged between 35 and 39 would be the best estimates 10/.

21. In cameroon, the proportion of 14 per cent of women aged between 45 and 49 without any live births is remarkably high for a pronatalist population. Although because of under-reporting, this proportion might not exactly reflect the level of sterility, it is close to the proportion of 12 per cent of women

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8/ Population et société, No. 173, October 1983.

9/ To simplify matters we will talk about infertile or sterile women. Sterility or infertility may affect either the wife or the husband or both spouses at the same time.

10/ Enquête Nationale sur la Fécondité et la Planification Familiale au Maroc. Rapport national 1984 - vol. III page 22. The Nigeria Fertility Survey Principal Report, 1984 - vol. I. page 75. The Sudan Fertility Survey Principal Report 1981 - vol. I page 53.

who had unproductive pregnancies at the time of the survey that proportion was considered as the actual level of primary sterility which is thus very high in Cameroon 11/.

(b) Secondary sterility

22. A study of the parity progression ratios among women who have virtually reached the end of their reproductive lives can provide an idea of the extent of secondary sterility. Such ratios indicate for a specific birth order, the proportion of women who have at least one additional child. The ratios are shown in Table A.4 in the annex and indicate that on the whole the fertility pattern of women aged between 45 and 49 has indeed conformed to the model of natural fertility. Thus, almost everywhere more than 80 per cent of women with seven children have an eighth child.

23. This fertility model appears however to have been hindered for some Cameroonian women by primary and secondary sterility. Thus, in the case of nulliparous women not only is the probability of having a first child relatively low as compared to the probabilities observed in other countries, but the values attained in the other birth orders are proof of the growing number of women affected by secondary sterility in Cameroon.

24. Obviously, greater attention should be devoted to the problem of sterility and thorough investigations should be carried out to identify all the aspects of sterility especially as a determinant of population behaviour.

25. In this regard, O. Frank rightly wrote that if the problem of female infertility was not tackled soon bringing about a decline in fertility in Africa might be delayed because the uncertainty of bearing children frustrates internal and external pressure to reduce the number of desired children.

26. Working on the assumption that the percentage of women without any live births was three per cent, which one should normally expect in developing countries, Odile Frank examined the incidence of sterility in sub-Saharan Africa and identified certain areas of high sterility in a considerable part of Central Africa: the Central African Republic, south-west Sudan, north Zaire, the Congo, Gabon and Cameroon 12/.

27. There are of course many potential causes of sterility. However, when contemporary literature on the subject is studied it is realized that venereal diseases, including particularly syphilis and gonorrhoea, are considered the main causes of sterility in Africa which is therefore of pathological origin. The World Health Organization cites in addition some diseases associated with relatively high levels of sterility such as genital tuberculosis abortion related infections or puerperal infections, filariosis etc. 13/. The diet, state of health, malnutrition, endogamous marriages also seem to have an adverse effect on fertility.

11/ Enquête nationale sur la fécondité du Cameroon - Rapport principal 1983, vol. I, page 66.

12/ Odile Frank. Infertility in Sub Saharian Africa: Estimate and implications Population and Development Review, Volume 9 No 1 March 1983. pp. 137-144.

13/ WHO, Epidemiology of infertility technical reports series, Geneva, 1975, no. 582.

23. Unfortunately because of insufficient data the incidence of all these potential causes of sterility in Africa cannot be evaluated.

2.2.4 Initial fertility

29. Unlike the period covered by cumulative fertility, fertility at the beginning of marriage or initial fertility covers only the first five years of marriage Initial frequency therefore analyses behaviour with respect to fertility at the beginning of reproductive life. It has often been thought that if the duration of exposure to the risk of conception is reduced among population that have been influenced very little by Malthusianism, and where the fertility level depends considerably on both the frequency of sexual relations and the duration of marriage, cumulative fertility could then be expected to decline. That is why many recommendations advocate a rise in the age at first marriage in order to delay as much as possible the beginning of women's reproductive life. The age at first marriage has thus become one of the least controversial instruments of population policy. Although among some populations the period of reproduction and hence that of exposure to the risk of conception begins with marriage such is not always the case everywhere. Although many factors such as education, urbanization and social standards with respect to childbearing could certainly delay marriage they could in addition cause some divergence in childbearing behaviour and exposure to conception could happen outside marriage

30. We will try to analyse the impact of age at first marriage on fertility at the beginning of marriage which will be described by two indicators: the interval between marriage and the first birth and the mean number of live births by woman during the first five years of marriage. The analysis will therefore be limited to women married for the first time five years or more before the survey

(a) Interval between first marriage and first birth

31. The data presented in tables A.5 and A.6 in the annex show the mean interval between first marriage and first birth and the percentage of women with children before the marriage by age at the first marriage.

32. For all the women considered, the mean duration of the first interval is between 18 months in Benin and 36 months in the Sudan. However, for most of the countries the duration is about 20 to 22 months. Depending on the age at first marriage, the longest duration was observed among women who were relatively young at their first marriage(less than 15 years old). The shortest duration was generally observed among women who were older than 20 at their first marriage

33. The effect of age at first marriage is more striking with respect to the percentages of women who had children before their first marriage (table A.6). There is a steady increase in these percentages as the age at first marriage increases. There are however two exceptions to this rule: Egypt and Tunisia where there does not appear to be any illegitimate births. These findings could be interpreted as the consequence of social fertility standards in African societies which make women who marry late in life want to "catch up" with those who married early in life with respect to fertility. Thus, if at the first marriage a woman is older, she "feels" she is late and wants to quickly make up for lost ground. This will be all the more feasible because the women marry at an age when their childbearing faculties are more developed.

(b) Mean number of live births in the first five years of marriage

34. Table A.7 in the annex gives the mean number of live births during the first five years of marriage to still married women during the period by age at first marriage. The increase in fertility at the beginning of marriage suggested by the shortening in the mean duration of the interval between marriage and the first birth at the same time as the rising age at first marriage is confirmed by the indicator in the table.

35. Indeed, the mean number of live births during the first five years of marriage clearly shows the trend towards an increase in fertility at the beginning of marriage which is linked to the rising age at first marriage in the counries studies.

36. The attempt - women who married rather late to catch up with respect to fertility therefore begins probably during the first years of marriage. However, if its is accepted that these categories of women are those who live in cities and/or are women who have a relatively high level of education it could then be assumed that they will tend to have the number of children desired more rapidly and stop producing children earlier. Since they are better informed about basic health care, they have more confidence in their children's chances of survival and desire to have smaller families. This would not be the case of rural women who generally marry younger and whose children are more exposed to the risks of death. Rural women would tend to have children at the same rate until the end of their reproductive life in the hope that as many of them as possible will survive. They no longer under any social pressure.

37. Even if these findings can be interpreted in several ways, they show that if the policy aimed at increasing the age at first marriage is necessary it is not enough to change the childbearing pattern in the countries studies; it should make provision for appropriate related measures to ensure that when the objective is attained it will not result in an increase in fertility and greater risks of premarital conception.

2.2.5 Structure of fertility

38. The fertility structure will be studied from the fertility rates calculated by the age of the mothers over a period of five years prior to the survey. Table A.8 in the annex shows age-specific fertility rates and this structure has been standardized (table A.9 in the annex) to facilitate comparison.

39. The total fertility rates obtained from this system of rates shows that the fertility index is very high in the countries studied. The levels of fertility observed are about three times as high as the level of 2.2 required to renew a given population. Thus total fertility is between 5 and 7 children the record of 8 children is observed in Kenya.

40. Adolescent fertility (15-19 years) is relatively high: the rates observed are about 100 births per 1,000 women in Egypt, Morocco and Lesotho and are generally about 150 per 1,000 in the other countries. The only exception is Tunisia which has a very low rate of 34 per 1 000 among the 15 19 age group.

41. The age pattern of fertility is characterised by a wide spread of births throughout the period of reproduction. Although the relative age specific fertility rate (table A.9) are at a maximum between 20 and 30 years, they are often between 25 and 29 years. The curves of these rates have the same form but the shift towards the right of the curve of the relative rates calculated for Tunisia is probably the result of a change in the fertility schedule in Tunisia.

42. The data in table A.10 in the annex could be used to work out in what proportion certain age groups contributed to total fertility.

43. The contribution of adolescents (below 20 age group) to total fertility is about 10 to 15 per cent in all the counrties studied: this proves the precocity of the fertility schedule in those countries except Tunisia where adolescent fertility accounts for only a very small proportion of total fertility.

44. Women aged between 20 and 29 years and those aged between 30 and 49 years account for about the same proportion of total fertility and such proportions are often much higher than 40 per cent. In some countries, the contribution of the intermediate age groups (20 30 years) is higher than that of the 30 49 age group and is even remarkably high in Egypt and Morocco where women between the ages of 20 and 30 account for up to 50 per cent of total fertility.

45. To sum up the contribution of the various age groups shows that in some African countries the fertility schedule conforms to a normal pattern where women bear children until they are around 45 years of age. Early menopause is thus rare.

III. REPORT ON CURRENT ESTIMATES OF MORTALITY IN ECA MEMBER STATES

3.1 Scope of the Study

46. Information on mortality levels, patterns, differentials and trends play important and diversified roles in development planning in many countries. The mortality data, for instance on estimates of infant mortality rates or expectation of life at birth ar important indicators of socio-economic and health status of any country. Information on mortality levels in Africa is scarce because no comprehensive system of collecting data on mortality exists. Most countries in the region have not developed vital registration systems needed to obtain adequate data for mortality estimation. However, available data from censuses and surveys have been used to obtain estimates which suggest that mortality levels in Africa are among the highest in the world.

47. Recent estimates of mortality provided by United Nations suggest that crude death rates for countries in Africa are about 20 per 1000 population and infant mortality rates exceed 100 per 1000 live births. A peculiar feature of mortality in the region is the persistence of the high incidence of second year deaths. In fact, it has been estimated that about a third of all chidren born in Africa die before they attain the age of five. This high level of mortality, particularly that of infant and child mortality explains the relatively short average life span at birth of about 50 years in almost all African countries.

48. The objective in this section of the paper is to review recent studies undertaken by ECA, which aimed at identifying mortality levels, patterns, trends and differentials in some countries in Africa. So far three studies have been completed for four selected countries in each of the Eastern, Western and Northern sub-regions. The countries included in the studies had recent population census and demographic survey data, data from some form of vital registration system and availability of medical records from health institutions. On these bases, we covered Kenya (censuses 1969, 1979), Malawi (censuses 1966, 1977), Tanzania (censuses 1966, 1978) and Zambia (censuses 1959, 1974) in Eastern Africa. In Western Africa we included Gambia (censuses 1962, 1973), Ghana (censuses 1960, 1970), Liberia (censuses 1962, 1974) and Sierra Leone (censuses 1962, 1974)' and lastly in Northern Africa we included Egypt (censuses 1960, 1976), Morocco (censuses 1960, 1971), Sudan (census 1973) and Tunisia (censuses 1966, 1975). These series of studies would continue to cover as many countries as possible in all other subregions in order to have comprehensive mortality information on general mortality and that among infants and early childhood mortality.

3.2 Mortality Levels and Trends

49. Many types of mortality measures are used as indicators of mortality. Some of these measures refer to all ages combined while others refer to specific age groups of cohorts. In Table A.11 (annex) we present three such measures, namely, crude death rate (CDR) which is defined as deaths in a particular year for all ages combined divided by total mid-year population. CDR is a crude indicator of mortality levels because it is influenced by age composition of population.

50. The second measure which is commonly used is the expectation of life at birth (P_o). This index summarizes average life span by using knowledge of mortality to new borne to measure the number of expected years of future life, the average life, for a cohort of new borne infants. This is a refined measure of mortality, it is not influenced by age distribution of population and it can be used to compare mortality levels of countries. The third measure presented in this table is the infant mortality rate (IMR) defined as the number of infant deaths in a year divided by the number of total live births in that year.

51. The mortality data presented in Table A.11 reveal that mortality is still high in the region, and secondly, the level of mortality dropped in the intercensal period in all countries included in this table. Within each sub-region levels of mortality were different. In terms of both series of data, the countries that had highest estimates of p_o, were Kenya and Egypt in Eastern and Northern subregions respectively. In West Africa where Gambia had highest estimates of 1_o in 1960s was superceded by Ghana whose estimates of p_o in 1970 were the highest. The third aspect of mortality revealed in this table is that male mortality in every country is higher than that for females except for some countries in Northern Africa, where estimates of p_o for females are lower than for males such as in the Sudan. Although the census of this sex differences in mortalityare not yet clear, evidence from India and Pakistan data leads one of the suggestion that the better care for male children contribute this difference.

3.3 Mortality Pattern and Differentials

52. Mortality levels, patterns and trends tend to be influenced by age and sex. Suitable data for analyzing the age pattern of mortality of African Populations are not available for almost all countries since data from comprehensive vital registration systems do not exist. However, it has been established, where reasonably reliable data exist, that age patterns of mortality in high-mortality countries are invariably U-shaped, with high infant and childhood death rates and high and rising deaths in the younger and older age groups respectively. 14/ African populations are characterized by high infant and childhood death rates. Mortality rates drop to relatively low levels during later childhood and early childhood but begin to rise again after thirty-five years of age. For lack of comparable data analysis is only on sex differentials in mortality.

53. The sex patterns of mortality revealed in Table A.11 are that mortality levels are higher for males than females. All the three indices of mortality suggest higher male than female mortality for both series of data for all countries. However, there is a peculiar observation for data from some countries in Northern Africa. Estimates of CDR and IMR for 1960 series of Morocco and Tunisia are lower for males than females. Estimates of 1_o for males are greater than for females in these countries. This observation was presistent in the 1970 series of data for Morocco, but situation was reversed for Tunisia. The sex pattern of mortality for Sudan also suggest higher female than male mortality. This rather unusual sex pattern of mortality may be true for the countries in the North Africa subregion and it may also suggest important stages in the demographic transition theory that high mortality countries with strong cultural values for survival of sons do tend to be subjected to reversed sex patterns of mortality. The differences in the sex patterns of mortality among the countries within Northern Africa are significant. Thus the sex differentials in mortality in Tunisia has been declining lead one to suggest that increased universal education and

14/ UN Levels and trends of mortality since 1950, ST/ESA/SER.A/74, NY 1982, P.8

other social reforms in favour of females not only reduce mortality but also reduce higher female mortality. Data in the table suggest that mortality levels were highest among countries in Western Africa and lowest for those in Northern Africa. Estimates of p_o based on either 1960s series or 1970s series of data show highest life expectancy at birth for countries in North Africa followed by these in Eastern Africa and, lastly, countries in Western Africa.

IV. CONCLUSION

54. The main activities undertaken over the past few years with respect to both data collection and data analysis have provided a clearer picture of the population situation in Africa.

55. The global levels of fertility are now known. The censuses have given an estimate of fertility and surveyssuch as those carried out as part of the World Fertility Survey have provided increasingly accurate measures of fertility.

56. The levels of fertility in Africa are now relatively high. Thus, by the time an African woman's reproductive life is over, she will have given birth to between six and seven children; this reflects a "natural" fertility model. Fertility is highest between the ages of 20 and 30 years.

57. Although such levels of relatively high fertility on the African continent are making African governments increasingly worried, thoseproblem should not make governments overlook the problem of infertility which, in the socio-cultural context of Africa, is more alarming. The incidence of infertility or sub-fertility in some African regions remains an obsession for all African women. According to the African saying, there is no greater misfortune for an African woman than sterility.

59. It also appears that as a result of the rising age at first marriage, there is an increase in the rhythm of child bearing in the first birth interval accompanied by a shortning in the mean duration of that interval. This would thus result in an increase in fertility at the beginning of marriage which, if no precautions are taken in the future could simply become an increase in fertility.

59. Indeed, in view of the clearly formulated objectives in the economic and social development plans of African governments such as urbanization and modernization, universal education, eradication of infant mortality, a decrease in sterility and so on, still greater changes should be expected in the near future.

60. It should for example be expected that not only would the chances of women breat-feeding their babies become increasingly smaller, but that the duration of breastfeeding will become increasingly shorter. Similarly, post-partum sexual abstinence will be less common and of shorter duration, and people will be increasingly older at first marriage. Thus, if there is no corresponding increase in the use of modern contraception, such a disruption of the traditional mechanisms of fertility regulation in Africa might, if it becomes worse, make women more exposed to the risk of conception and the consequence will be an inevitable increase in fertility.

61. Recent estimates in some East, West and North African countries show that levels of mortality are still relatively high in Africa. Life expectancy at birth is about 50 years in Africa while it is much higher than 70 years in the developed countries.

62. Infant and child mortality is also very high and alone accounts for more than half of all deaths in almost all the African countries. Available data have also showed variations in mortality among countries and quite significant differences between regions of the same countries and between urban and rural areas.

63. Although current knowledge on the levels, structure, trends and determinants of mortality in Africa is limited, the data presented suggest that the priority objectives of any population policy aimed at reducing mortality should be the reduction of infant and child mortality. Since infectious diseases, parasites and malnutrition still remain the main causes of infant mortality, a consistent population education policy should be developed to get parents to take the preventive measures required to bring about a decline in childhood morbidity and mortality. Such a policy should go hand-in-hand with the reorganization of health services, a better distribution of health facilities between urban and rural areas and development of basic health care.

64. On the basis of the findings presented and analyzed in this document that it can be stated in a nutshell the levels of fertility and mortality in most African countries are still relatively high. However, it is still difficult to accurately determine the levels of fertility and mortality because of inadequate demographic data and a lack of appropriate analysis techniques to generate reliable estimates.

65. As a result of these shortcomings, the conclusion we have reached should not be considered as final. On the contrary, as the quality of data is expected to gradually improve in the future, they could be adjusted accordingly.

Table A1: Estimate of population size, crude birth rates and crude reproduction rates

Regions or countries	Estimate of population size in July 1980 (in thousands)	Estimate of crude birth rate & crude reproduction rate in 1980-1985	
		CBR (%)	CRR
Central Africa		44.8	2.97
Angola	7 723	47.3	3.15
Cameroon	8 554	43.2	2.85
Congo	1 529	44.5	2.95
Gabon	1 074	34.6	2.30
Equatorial Guinea	352	42.5	2.79
Central African Republic	2 290	44.7	2.90
Sao Tome and Principe	85	-	-
Chad	4 777	44.2	2.90
Zaire	29 532	45.2	3.00
East Africa		49.1	3.35
Burundi	4,052	47.8	3.17
Comoros	392	46.3	3.10
Djibouti	310	-	-
Ethiopia	32,012	49.2	3.30
Kenya	16 776	55.1	4.00
Madagascar	8 704	44.4	3.00
Malawi	5 969	52.1	3.45
Mauritius	955	25.5	1.35
Mozambique	12 094	44.1	3.00
Uganda	13 179	49.9	3.40
Reunion	525	20.5	1.10
Rwanda	5 144	51.1	3.60
Seychelles	65	-	-
Somalia	4 612	46.5	3.00
Tanzania	18 [illegible]87	50.4	3.50
Zambia	5 64[illegible]	48.1	3.33
Zimbabwe	7 360	47.2	3.25
North Africa		41.9	2.93
Algeria	18 667	45.1	3.40
Egypt	41 251	38.1	2.55
Libya	2 974	45.6	3.50
Morocco	20 050	44.0	3.14
Sudan	18 681	45.9	3.22
Tunisia	6 393	34.1	2.40

Table A1: (continued)

Regions or countries	Estimate of Population size in July 1980 (in thousands	Estimate of crude birth rate & crude reproduction rate in 1980-1985 CBR (%)	CRR
West Africa		44.8	2.97
Benin	3,472	51.0	3.45
Burkina Faso	6 174	47.8	3.20
Cape Verde	300	23.9	1.30
Cote d'Ivoire	8 247	46.0	3.30
Gambia	583	48.4	3.15
Ghana	11 457	47.0	3.20
Guinea	4 832	46.8	3.05
Guinea Bissau	809	40.7	2.65
Liberia	1 871	48.7	4.40
Mali	7 009	50.2	3.30
Mauritania	1 631	50.1	3.40
Niger	5 311	51.0	3.50
Nigeria	80 553	50.4	3.50
Senegal	5 708	47.7	3.20
Sierra Leone	3 296	47.4	3.02
Togo	2 534	45.4	3.00
Southern Africa		39.8	2.57
Botswana	908	50.0	3.20
Lesotho	1 339	41.7	2.85
Namibia	1 345	45.1	3.00
South Africa	28 612	38.7	2.50
Swaziland	558	47.5	3.20

Source: United Nations - World Population Projects - Estimates and Projections as assessed in 1982, 1984, New York.

Table A2: Mean number of live births by age of mothers at the time of the survey (ever-married women)

Country	Date of the Survey	Age Groups at the Time of the Survey							
		20	20-24	25-29	30-34	35-39	40-44	45-49	All
Benin	1982	.63	1.68	3.16	4.73	5.76	6.08	6.29	3.81
Cameroon	1978	.71	1.73	3.05	4.19	4.09	5.23	5.25	3.47
Cote d'Ivoire	1980	.80	2.00	3.40	4.00	5.90	6.70	6.90	3.80
Egypt	1980	.63	1.81	3.07	4.61	5.79	6.46	6.87	4.13
Ghana	1979	.71	1.59	2.76	4.06	5.39	6.14	6.73	3.66
Kenya	1978	.94	2.16	3.84	5.62	6.86	7.55	7.90	4.84
Lesotho	1977	.49	1.43	2.62	3.95	4.73	5.14	5.41	3.19
Morocco	1980	.27	1.92	3.25	4.91	6.13	7.11	7.08	4.55
Mauritania	1981	.99	2.17	3.73	5.00	5.79	5.97	6.10	3.88
Nigeria	1982	.83	2.10	3.31	4.36	5.12	5.15	5.873	3.67
Senegal	1979	.71	1.95	3.52	5.26	5.98	6.77	7.21	4.03
Sudan	1979	.70	2.19	3.42	4.99	5.91	6.03	6.07	4.21
Tunisia	1978	.63	1.52	2.88	4.53	5.81	6.60	7.04	4.50

Source: National fertility surveys - Analysis report - Vol. I

Table A3: Percentage of childless ever-married women by age group at the time of the survey

Country	Age Groups							
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	All
Benin	45.0	12.0	5.0	3.0	4.0	3.0	4.0	9.0
Cameroon	46.4	16.7	11.0	9.6	11.4	10.8	13.7	16.7
Cote d'Ivoire	40.1	9.9	5.1	4.9	3.1	3.3	5.0	10.9
Egypt	52.5	18.1	8.5	4.1	3.2	4.1	3.7	11.0
Ghana	37.3	12.3	5.8	4.2	1.0	2.6	2.1	8.2
Kenya	37.5	11.5	5.7	3.5	3.0	4.8	4.6	8.5
Lesotho	55.4	18.1	6.0	3.3	4.2	5.8	4.1	12.9
Morocco	45.7	15.9	9.9	5.6	6.0	5.4	8.5	11.7
Mauritania	36.0	13.7	6.3	4.3	4.0	5.8	3.7	11.3
Nigeria	41.6	12.7	7.4	5.1	5.2	6.9	8.0	11.2
Senegal	43.9	10.9	4.1	4.4	3.4	3.5	3.5	11.4
Sudan	52.3	14.5	7.5	5.4	5.3	6.5	8.6	11.3
Tunisia	46.9	20.8	6.6	4.5	4.1	3.6	3.7	8.5

Source: National fertility surveys - Analysis report - Volume I

Table A4: Parity progression ratios (%) for women between 45-49 years (all women)

Country	Parity Progression Ratios										
	a 0	a 1	a 2	a 3	a 4	a 5	a 6	a 7	a 8	a 9	a 10
Benin	977	972	918	814	887	800	802	706	674	487	515
Cameroon	852	910	937	880	891	886	770	917	689	639	686
Cote d'Ivoire	956	982	955	950	944	883	855	753	665	595	-
Egypt	966	964	970	961	927	885	862	784	738	657	539
Kenya	975	982	976	957	956	938	926	884	759	733	521
Lesotho	960	940	910	900	970	930	800	750	700	650	560
Morocco	914	962	960	972	962	961	889	869	778	743	611
Mauritania	970	920	930	940	870	870	860	800	830	650	680
Senegal	971	974	952	955	914	923	877	833	735	688	590
Sudan	921	951	922	923	898	895	831	824	655	726	510
Tunisia	960	979	954	929	894	957	857	804	739	569	632

Source: National fertility surveys - Analysis report, Volume I

Table A5: Mean duration in months of the interval between first marriage and first birth according to age at first marriage (women married for the first time five years or more before the survey)

Country	Age at first marriage							All
	<15	15-17	18-19	20-21	22-24	25-29	30+	
Benin	19.8	18.2	16.7	17.5	16.1	17.9	23.7	17.8
Cameroon	26.5	20.1	17.8	13.1	17.8	15.4	20.8	21.1
Cote d'Ivoire	21.7	19.6	19.2	19.5	17.5	21.0	10.3	19.9
Egypt	23.2	20.4	19.8	19.9	18.2	18.2	19.7	20.3
Ghana	30.0	25.3	24.1	26.4	17.6	19.3	18.8	25.1
Lesotho	25.6	22.3	20.1	18.8	18.1	18.0	19.9	21.1
Morocco	24.6	21.1	20.2	19.9	20.8	15.0	23.7	21.8
Mauritania	24.8	24.2	20.5	21.6	19.6	21.2	16.6	23.9
Nigeria	24.4	20.2	20.4	19.0	18.4	22.3	14.6	21.6
Senegal	24.3	20.7	18.2	19.2	18.9	15.6	-	21.6
Sudan	42.0	34.5	29.2	27.5	20.4	25.6	18.5	36.3
Tunisia	25.8	22.3	19.3	19.0	17.9	16.3	15.7	20.4

Source: National fertility surveys - Analysis report - Vol. I.

Table A6: Percentage of women with children before marriage by age at first first marriage (women married for the first time five years or more before the survey)

Country	Age at first marriage							
	<15	15-17	18-19	20-21	22-24	25-29	30 +	All Ages
Benin	8.4	12.6	15.0	19.1	23.5	30.1	46.2	15.0
Cameroon	5.3	12.7	20.4	33.0	44.5	55.4	71.3	18.0
Cote d'Ivoire	5.6	12.7	16.1	29.1	35.4	55.0	89.7	16.0
Egypt	0.0	0.0	0.2	0.0	0.2	0.5	0.0	0.1
Ghana	3.3	7.2	8.0	7.9	15.5	19.8+		7.9
Kenya	6.2	13.2	25.0	29.8	39.9	41.2	53.2	18.5
Lesotho	2.2	2.9	2.9	7.6	7.6	24.2	30.0	4.5
Morocco	2.3	4.2	5.6	4.2	4.7	8.0	14.3	3.9
Mauritania	0.6	1.6	8.3	7.3	5.6	6.9	4.2	2.0
Nigeria	6.6	12.5	12.7	19.5	21.5	29.0	49.1	11.7
Senegal	0.5	2.1	4.8	12.5	8.3	26.9	66.7	2.8
Tunisia	0.0	0.0	1.1	0.0	0.3	0.5	0.0	0.1

+25 years and over
Source: National fertility survey - Analysis report, Vol.I.

Table A7: Mean number of live births before or during the first five years of marriage by maternal age at first marriage

Country	Age at first marriage							
	<15	15-17	18-19	20-21	22-24	25-29	30 +	All Ages
Benin	1.4	1.9	1.9	1.9	2.1	2.3	3.5	1.9
Cameroon	1.0	1.5	1.7	2.0	2.2	2.5	3.1	1.5
Cote d'Ivoire	1.5	1.7	1.8	2.1	2.1	2.9	3.0	1.8
Egypt	1.7	1.9	2.0	1.9	1.9	1.8	1.2	1.8
Ghana	1.5	1.6	1.7	1.6	2.0	2.0	2.1	1.7
Kenya	1.6	1.9	2.0	2.0	2.0	1.9	1.3	1.8
Lesotho	1.2	1.4	1.5	1.7	1.7	2.0	2.0	1.5
Morocco	1.3	1.8	1.9	1.9	1.8	2.0	1.9	1.7
Mauritania	1.2	1.5	1.7	1.8	1.6	2.0	1.5	1.3
Nigeria	1.2	1.6	1.7	1.8	1.9	2.1	2.7	1.5
Senegal	1.4	1.6	1	1.6	1.9	(2.2)	(3.0)	1.5
Sudan	1.4	1.6	1.7	1.8	1.7	1.6	1.6	1.5
Tunisia	1.5	1.8	2.0	2.1	2.1	2.2	(1.9)	1.9

Source: National fertility surveys - Analysis report, Vol. I

Table A8: Age-specific fertility rates (%) and total fertility (0-4 years before the survey)

Country	Age group at the time of the survey							Total Fertility
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Benin	151	314	329	278	193	99	51	7.11
Cameroon	186	295	277	220	155	106	36	6.38
Cote d'Ivoire	216	314	299	245	207	129	60	7.37
Egypt	99	256	285	217	130	48	16	5.27
Ghana	132	257	266	242	169	135	50	6.26
Kenya	174	346	354	301	241	166	68	8.25
Lesotho	67	293	289	242	186	87	26	5.95
Morocco	93	265	296	222	178	98	29	5.91
Mauritania	155	264	290	242	168	86	44	6.25
Nigeria	173	284	274	231	147	100	60	6.35
Senegal	188	304	331	270	197	106	36	7.16
Sudan	114	264	283	251	149	108	35	6.02
Tunisia	34	225	304	261	199	112	37	5.86

Source: National fertility surveys - Analysis report, Vol. I.

Table A9: Relative [illegible]

Country	Age groups at the time of the survey							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Benin	107	222	233	196	136	70	36	1000
Cameroon	146	231	217	173	122	83	28	1000
Cote d;Ivoire	147	213	203	167	141	88	41	1000
Egypt	94	244	271	206	124	46	15	1000
Ghana	106	205	213	193	135	108	40	1000
Kenya	105	210	215	182	146	101	41	1000
Lesotho	56	246	244	203	156	73	22	1000
Morocco	79	224	251	188	151	83	24	1000
Mauritania	124	211	232	194	135	69	35	1000
Nigieria	136	224	216	182	116	79	47	1000
Senegal	131	212	231	189	138	74	25	1000
Sudan	95	219	235	208	124	90	29	1000

Source: Table A8

Table 10: Relative contribution to total fertility of women below 20 years, between 20 to 29 years, 30 years and over

Country	Total Fertility	Cumulative Fertility			Relative Contribution to Total Fertility (%)		
		From 15-19	From 20-29	From 30-49	Women under 20 years of age	Women between 20-29 years of age	Women between 30-49 years of age
Benin	7.11	0.75	3.22	3.13	11	45	44
Cameroon	6.38	0.93	2.86	2.59	15	45	40
Cote d'Ivoire	7.47	1.08	3.07	3.32	14	41	45
Egypt	5.27	0.50	2.71	2.06	10	51	39
Ghana	6.26	0.66	2.62	2.98	10	42	48
Kenya	8.31	0.87	3.50	3.94	11	42	47
Lesotho	5.79	0.52	2.62	2 .65	9	45	46
Morocco	6.91	0.50	2.91	2.49	9	43	42
Mauritania	6.25	0.78	2.77	2.70	13	44	43
Nigeria	6.46	0.87	2.79	2.80	14	43	43
Senegal	7.23	0.94	3.18	3.11	13	44	43
Sudan	6.02	0.57	2.75	2.70	9	46	45
Tunisia	5.85	0.17	2.65	3.03	3	45	52

Source: Table A8

Table .11: Estimates of indices of mortality for selected countries in Africa based on data collected in 1960s & 1970s

Country	1960s series of Data a/ CDR M	CDR F	IMR M	IMR F	$_1q_0$ M	$_1q_0$ F	1970s series of Data b/ CDR M	CDR F	IMR M	IMR F	$_1q_0$ M	$_1q_0$ F
Eastern Africa												
Kenya	20.0	17.8	120.0	102.0	44.3	47.5	18.2	16.1	105.0	89.0	47.1	50.4
Malawi	24.5	22.1	-	-	38.3	42.4	22.5	20.0	224.0	193.0	41.5	44.5
Tanzania	22.5	20.3	156.0	133.0	41.3	44.4	20.0	17.9	148.0	125.0	44.7	47.3
Zambia	22.5	20.0	135.0	115.0	41.5	44.5	19.2	17.1	106.0	90.0	48.3	48.5
Western Africa												
Gambia	25.4	25.8	-	-	38.0	39.2	28.7	23.3	224.0	200.0	34.6	40.4
Ghana	27.2	29.3	-	-	36.3	38.6	23.3	22.9	-	-	39.7	41.3
Liberia	25.4	25.9	-	-	39.4	37.8	22.0	25.7	125.0	107.0	40.8	38.5
Sierra Leone	26.7	31.7	-	-	37.0	33.3	27.2	26.0	246.0	224.0	36.5	36.8
Northern Africa												
Egypt	20.4	19.2	160.0	145.8	44.2	46.2	12.5	11.9	106.9	100.6	56.1	58.3
Morocco	21.1	21.5	164.9	157.3	43.2	43.3	15.9	17.4	131.4	135.5	50.4	48.7
Sudan	-	-	-	-	-	-	17.9	23.4	144.3	163.5	47.5	41.8
Tunisia	13.6	14.7	115.6	119.6	54.0	52.9	12.9	12.8	111.2	108.0	55.0	55.2

(-) Data not available.

a/ Census dates were as follows: Kenya 1969, Malawi 1966, Tanzania 1967, Zambia 1969, Gambia 1962, Ghana 1960, Liberia 1962, Sierra Leone 1962, Egypt 1960, Morocco, 1960, Tunisia 1966.

b/ Census dates were as follows: Kenya 1979, Malawi 1977, Tanzania 1978, Zambia 1974, Gambia 1973, Ghana 1970, Liberia 1974, Sierra Leone 1974, Egypt 1976, Morocco 1971, Sudan 1973 and Tunisia 1975.